IN THE CLAIMS

1. (Currently amended) A control method for a data transfer device that comprises[[:]] a data receiver for receiving write data [[for]] to be stored in a storage device; a data control unit for transferring the write data received by the data receiver to the storage device; and a data storage unit for storing serial data that is read from ~~stored in~~ a storage area of the storage device,

wherein the method is performed by the data control unit and comprises the steps of:

~~the data control unit reads~~ reading the serial data ~~stored in~~ from the storage device in block units and ~~stores~~ storing this serial data in the data storage unit;

when, with respect to the received write data, a block of data in [[the]] said storage area of the storage device ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the storage device ~~that is~~ and stored in the data storage unit are the same, ~~the data control unit updates~~ updating the serial data stored in the data storage unit ~~corresponding with the storage device storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the received write data, a block of data in [[a]] said storage area of the storage device ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the storage device ~~that is~~ and stored in the data storage unit are different, ~~the data control unit generates~~ generating a security code based on the serial data stored in the data storage unit, ~~adds~~ adding the generated security code to the serial data stored in the data storage unit, ~~before~~ transferring this serial data having the security code added thereto to the storage device, ~~reads~~ reading the serial data stored in the block in the storage area of the storage device constituting the write destination of the write data ~~before storing this serial data in the data storage unit~~, and ~~updates~~ updating the data stored in the data storage unit ~~corresponding with the storage device storage location constituting the write destination of the write data~~ by means of the write data.

2. (Currently amended) The control method for the data transfer device according to claim 1, wherein [[the]] serial write data that is serially received by the data receiver is

not necessarily ~~written~~ transferred to successive areas of the block in the order in which this data is received.

3. (Currently amended) A data transfer circuit, comprising:

a data receiver for receiving write data [[for]] to be stored in a storage device;

a data control unit for transferring the write data received by the data receiver to the storage device; and

a data storage unit for storing serial data that is ~~stored in~~ read from a storage area of the storage device,

wherein:

the data control unit reads the serial data ~~stored in~~ from the storage device in block units and stores this serial data in the data storage unit;

when, with respect to the received write data, a block of data in [[the]] said storage area of the storage device ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the storage device ~~that is~~ and stored in the data storage unit are the same, the data control unit updates the serial data stored in the data storage unit ~~corresponding with the storage device~~

~~storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the received write data, a block of data in [[a]] said storage area of the storage device ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the storage device ~~that is~~ and stored in the data storage unit are different, the data control unit generates a security code based on the serial data stored in the data storage unit, adds the generated security code to the serial data stored in the data storage unit, ~~before transferring~~ transfers this serial data having the security code added thereto to the storage device, reads the serial data stored in the block in the storage area of the storage device constituting the write destination of the write data ~~before storing this serial data in the data storage unit~~, and updates the data stored in the data storage unit ~~corresponding with the storage device storage location constituting the write destination of the write data~~ by means of the write data.

4. (Currently amended) The data transfer circuit according to claim 3, wherein [[the]] serial write data that is serially received by the data receiver is not necessarily

~~written~~ transferred to successive areas of the block in the order in which this data is received.

5. (Currently amended) A disk array device, comprising:

a host interface for receiving write data [[for]] to be stored in a disk drive from an information processing device; and

a data controller that transfers the write data received by the host interface to the disk drive,

wherein:

the data controller comprises a data receiver for receiving write data [[for]] to be stored in the disk drive from the host interface; a data control unit for transferring the write data received by the data receiver to the disk drive; and a data storage unit for storing serial data ~~stored in~~ read from the disk drive;

the data control unit reads the serial data ~~stored in~~ from the disk drive in block units and then stores this serial data in the data storage unit;

when, with respect to the received write data, a block of data in ~~the~~ said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that~~

~~is~~ and stored in the data storage unit are the same, the data control unit updates the serial data stored in the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the received write data, a block of data in [[a]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the data storage unit are different, the data control unit generates a security code based on the serial data stored in the data storage unit, adds the generated security code to the serial data stored in the data storage unit, ~~before transferring~~ transfers this serial data having the security code added thereto to the disk drive, reads the serial data stored in the block in the storage area of the disk drive constituting the write destination of the write data ~~before storing this serial data in the data storage unit~~, and updates the data stored in the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data.

6. (Currently amended) The disk array device according to claim 5, wherein the host interface is connected to the information processing device via a network; and [[the]] serial write data that is serially received by the host interface is not necessarily ~~written~~ transferred to successive areas of the block in the order in which this data is received.

7. (Currently amended) A disk array device, comprising:

a host interface for receiving write data [[for]] to be stored in a disk drive from an information processing device;

a data controller that transfers the write data received by the host interface to the disk drive;

a processor for exercising overall control; and

memory for storing data,

wherein:

the processor reads [[the]] serial data ~~stored in~~ from the disk drive in block units and stores this serial data in the memory;

when, with respect to the received write data, a block of data in [[the]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk

drive ~~that is~~ and stored in the memory are the same, the processor updates the serial data stored in the memory ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the received write data, a block of data in [[a]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the memory are different, the processor generates a security code based on the serial data stored in the memory, adds the generated security code to the serial data stored in the memory, ~~before transferring~~ transfers this data having the security code added thereto to the disk drive, reads the serial data stored in the block in the storage area of the disk drive constituting the write destination of the write data ~~before storing this serial data in the memory~~, and updates the data stored in the memory ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data.

8. (Currently amended) A disk array device, comprising:

a channel control unit for receiving write data [[for]] to be stored in a disk drive from an information processing device;

a disk control unit that performs processing relating to the writing of data [[for]] to the disk drive; and

cache memory for storing data that is exchanged between the channel control unit and the disk control unit,

wherein:

the channel control unit comprises a data receiver for receiving the write data; a data control unit for transferring the write data received by the data receiver to the cache memory; and a data storage unit for storing serial data ~~stored in the~~ received from a storage area of the disk drive;

the data control unit reads [[the]] serial data stored in the disk drive in block units from the cache memory and then stores this serial data in the data storage unit;

when, with respect to the received write data, a block of data in [[the]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the data storage unit are the same, the data control unit updates the serial data stored in

the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the received write data, a block of data in [[a]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the data storage unit are different, the data control unit generates a security code based on the serial data stored in the data storage unit, adds the generated security code to the serial data stored in the data storage unit, ~~before transferring~~ transfers this serial data having the security code added thereto to the cache memory, reads the serial data stored in the block in the storage area of the disk drive constituting the write destination of the write data from the cache memory ~~before storing this serial data in the data storage unit~~, and updates the data stored in the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data.

9. (Currently amended) The disk array device according to claim 8, wherein the channel control unit comprises an interface, which is connected to the information processing device via a network and receives the write data;

the data receiver receives the write data from the interface; and

[[the]] serial write data that is serially received by the interface is not necessarily ~~written~~ transferred to successive areas of the block in the order in which this data is received.

10. (Currently amended) A disk array device, comprising:

a channel control unit for receiving write data [[for]] to be stored in a disk drive from an information processing device;

a disk control unit that performs processing relating to the writing of data [[for]] to the disk drive; and

cache memory for storing data that is exchanged between the channel control unit and the disk control unit,

wherein:

the disk control unit comprises a data read unit, which reads the write data from the cache memory, a data control

unit, which transfers the write data read by the data read unit to the disk drive; and a data storage unit for storing serial data ~~stored in the~~ received from a storage area of the disk drive;

the data control unit reads the serial data ~~stored in~~ from the disk drive in block units and then stores this serial data in the data storage unit;

when, with respect to the write data read from the cache memory, a block of data in [[the]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the data storage unit are the same, the data control unit updates the serial data stored in the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data; and

when, with respect to the write data read from the cache memory, a block of data in [[a]] said storage area of the disk drive ~~constituting the write destination of the write data~~ and the ~~block in~~ serial data read from the storage area of the disk drive ~~that is~~ and stored in the data storage unit are different, the data control unit generates a security code based on the serial data stored in the data storage unit, adds

the generated security code to the serial data stored in the data storage unit before transferring this serial data having the security code added thereto to the disk drive, reads the serial data stored in the block in the storage area of the disk drive constituting the write destination of the write data ~~before storing this serial data in the data storage unit~~, and updates the data stored in the data storage unit ~~corresponding with the disk drive storage location constituting the write destination of the write data~~ by means of the write data.

11. (New) A control method for a data transfer device that comprises a data receiver for receiving write data to be stored in a storage device; a data control unit for transferring the write data received by the data receiver to the storage device; and a data storage unit for storing serial data that is read from a storage area of the storage device,

wherein the method is performed by the data control unit and comprises the steps of:

reading the serial data from the storage device in block units and storing this serial data in the data storage unit;

when, with respect to the received write data, a block of data in said storage area of the storage device and the serial

data read from the storage area of the storage device and stored in the data storage unit are the same, updating the serial data stored in the data storage unit by means of the write data, and transferring the updated serial data to the storage device; and

when, with respect to the received write data, a block of data in said storage area of the storage device and the serial data read from the storage area of the storage device and stored in the data storage unit are different, generating a security code based on the serial data stored in the data storage unit, adding the generated security code to the serial data stored in the data storage unit, transferring this serial data having the security code added thereto to the storage device, reading the serial data stored in the block in the storage area of the storage device constituting the write destination of the write data, and updating the data stored in the data storage unit by means of the write data.

12. (New) The control method for the data transfer device according to claim 11, wherein serial write data that is serially received by the data receiver is not necessarily transferred to successive areas of the block in the order in which this data is received.